Validation of GOES-R Vol Ash Products: Near Real-Time Operational Decision Support/Hazard Analysis

- Confirm and corroborate the GOES-R volcanic ash algorithm
- Use WRF-Chem and Puff models to simulate the volcanic events
- Determine the full particle size distribution and total mass and relate to retrieved GOES-R products (mass, optical depth, effective radii)
- Run simulation forecasts locally
- WRF-Chem can help to get good estimates on ash plumes (particle sizes, cloud thickness downwind)
- Set up experimental WRF-Chem prediction capability with the option to update runs with updated eruption source parameters (ESP)

GOES-R - Risk Reduction Program (GOES-R^3)
21 to 23 September 2011

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- Uncertainties with the ESP and particle size distribution using WRF-Chem in forecast mode
  - e.g. accuracy of plume heights (Eyjafjallajokull)
    - 5 km ASL plume, +/- 0.25 km, varies mass flux rate up to 36%
    - 10 km ASL plume, +/- 0.25 km, varies mass flux rate up to 13%
- Past event analysis and comparison to GOES-R algorithm will assist in future operational use
- North Pacific has had over 350 ash clouds > 20 Kft in past 40 years
- UAF-GI, with AVO and GINA, collects and interprets all satellite and ground observations of volcanic events across Alaska
- Assess discrimination and detection of volcanic ash from satellite IR data and compare with WRF-Chem simulations